On page 30, first paragraph (EXAMPLE 19), starting on line 5 and ending on line 11, please replace the paragraph with the following:

--Phagemid DNA from positive λZAP II Express™ phage clones was isolated by *in vivo* excision, by the conditions recommended by the manufacturer (Stratagene). Plasmid DNA, for restriction analysis was extracted by alkaline-lysis, as described by Sambrook et al (12), and for automated sequencing using the High Pure Plasmid Kit™, as recommended by the manufacturer (Boehringer Mannheim). DNA sequencing of inserts was performed by the Dye-terminator method of automated sequencing (ABI Biosystems). The sequences identified are set out in SEQ ID NOS: 5-23 (see Example 20).--.

IN THE CLAIMS

1. **(Twice Amended)** A vaccine composition for administration to an animal, comprising:

an immunogenic component of *L. intracellularis* or related microorganism, wherein said related microorganism is an isolate or subspecies of *L. intracellularis* or other species of the genus *Lawsonia*; and

a pharmaceutically acceptable carrier.

6. **(Twice Amended)** The vaccine composition according to Claim 1, wherein said immunogenic component comprises at least one macromolecule selected from the group consisting of a peptide, a protein, a carbohydrate, a lipid and a nucleic acid from *L. intracellularis* or related microorganism, said macromolecule being present in an amount effective to induce a protective immune response against *L. intracellularis* or related microorganism.

7. **(Twice Amended)** A vaccine composition according to Claim 6, further comprising a further peptide or protein from *L. intracellularis* or related microorganism.

8. **(Twice Amended)** The vaccine composition according to Claim 7, wherein the peptide or protein, is a recombinant peptide or protein.

9. **(Twice Amended)** The vaccine composition according to Claim 7, further comprising a compound selected from the group consisting of: a refolding and heatshock protein, a flagellar basal body rod protein, an S-adenosylmethionine:tRNA ribosyltransferase-isomerase,

an autolysin, an enoyl-(acyl-carrier-protein) reductase, a glucarate transporter, and a derivative of any of the above, wherein said derivative is still immunogenic.

10. **(Amended Four Times)** A vaccine composition for administration to an animal comprising an immunogenically effective amount of a polypeptide that comprises the amino acid sequence of SEQ ID NO:2 and a pharmaceutically acceptable carrier.

32. **(Amended)** A method for vaccinating an animal against infection by *L. intracellularis* or related microorganism, wherein said related microorganism is an isolate or subspecies of *L. intracellularis* or other species of the genus *Lawsonia* or treating an animal infected by *L. intracellularis*, said method comprising the step of:

administering to said animal an effective amount of an immunogenic component of *L. intracellularis* or related microorganism, wherein said related microorganism is an isolate or subspecies of *L. intracellularis* or other species of the genus *Lawsonia* for a time and under conditions sufficient to induce a protective immune response against *L. intracellularis* or said related microorganism.

37. **(Twice Amended)** A method according to Claim 32 wherein said immunogenic component comprises at least one of a peptide, protein, carbohydrate, lipid or nucleic acid molecule or a combination thereof from *L. intracellularis* or related microorganism in an amount effective to induce a protective immune response against *L. intracellularis* or said related microorganism.

38. **(Amended)** The method according to Claim 37 wherein said immunogenic component comprises a peptide, protein or a derivative thereof from *L. intracellularis*, wherein said derivative is still immunogenic.

39. **(Amended)** The method according to claim 38 wherein the peptide or protein is in recombinant form.

40. **(Twice amended)** A method according to Claim 32, wherein the immunogenic component is selected from the group consisting of: a refolding and heatshock protein, a flagellar basal body rod protein, an S-adenosylmethionine, tRNA ribosyltransferase-isomerase, an autolysin, an enoyl-(acyl-carrier-protein) reductase, a glucarate transporter, and a derivative of any of the proteins, wherein said derivative is still immunogenic.

41. **(Amended Three Times)** A method of vaccinating an animal against infection by *L. intracellularis* or related microorganisms or treating an animal infected by *L. intracellularis* said method comprising the step of: administering to said animal an immunogenically effective amount of a polypeptide that comprises the amino acid sequence of SEQ ID NO:2 or is at least 40% similar to SEQ ID NO:2, for a time and under conditions sufficient to induce a protective immune response against *L. intracellularis* or a related microorganism, wherein said related microorganism is an isolate or subspecies of *L. intracellularis* or other species of the genus *Lawsonia*.

94. **(Twice Amended)** A vaccine composition for administration to an animal comprising an immunogenically effective amount of a polypeptide that is immunologically cross reactive with a polypeptide comprising the sequence of SEQ ID NO: 2 and comprises an amino acid sequence encoded by nucleic acid that hybridizes to the complement of a nucleotide comprising the sequence of SEQ ID NO: 1 under hybridization conditions comprising at least about 16% (v/v) formamide to at least about 30% (v/v) formamide and at least about 0.5M salt to at least about 0.9M salt at a temperature of 42°C.

95. **(Twice Amended)** A method of vaccinating an animal against infection by *L. intracellularis* or related microorganism or treating an animal infected by *L. intracellularis* said method comprising the step of: administering to said animal an immunologically effective amount of a polypeptide that is immunologically cross reactive with a polypeptide comprising the sequence of SEQ ID NO:2 or an amino acid sequence encoded by a nucleic acid that hybridizes to the complement of SEQ ID NO: 1 under hybridization conditions comprising at least about 16% (v/v) formamide to at least about 30% (v/v) formamide and at least about 0.5M salt to at least about 0.9M salt at a temperature of 42°C.

109. **(Amended)** The method of claim 41, wherein the animal is a pig.

Please add the following claims:

114. (new) The vaccine composition of Claim 1 wherein said immunogenic component is selected from the group consisting of: SEQ ID NOS: 2, 4, 7, 9, 10, 12, 14, and 16.